WHAT IS CLAIMED IS:

1. A system providing network infrastructure services, comprising a shared memory facility interconnecting a plurality of network devices each configured to perform a dedicated network infrastructure function.

2. The system of claim 1, wherein the dedicated network infrastructure function is selected from the group consisting of: a network security function, a quality of service function, and a network management function.

3. The system of claim 2, wherein the dedicated network infrastructure function is selected from the group consisting of: a proxy function, a load balancing function, a memory caching function, an encryption function, a compression function, a re-routing function, an application level network management function, and an active network management function.

4. The system of claim 1, wherein the shared memory facility is a global shared memory facility, a distributed shared memory facility, or a logically shared memory facility.

5. The system of claim 1, wherein each network device is operable to perform only a single network infrastructure function.

6. The system of claim 1, wherein each network device is configurable and comprises a local processor and a local memory.

7. The system of claim 6, wherein each network device includes in local memory an application module operable to control the functionality of the network device, and a configuration file containing parameters controlling operating characteristics of the network device.

8. The system of claim 7, wherein each network device further comprises a kernel operable to provide basic services to the network device.

1   9.   The system of claim 6 wherein the dedicated network infrastructure
2 function performed by a network device is dynamically configurable.

1   10.   The system of claim 9, where the dedicated network infrastructure
2 function performed by a network device is selected based upon a network
3 management policy.

1   11.   The system of claim 6, wherein each network device further comprises:
2   a local communications protocol stack; and
3   a shared memory interface system operable to provide a local shared memory
4 network between the network devices, and a global shared memory network
5 between the network devices and one or more remote nodes by capturing packets
6 from the local communications protocol stacks and routing the captured packets over
7 the shared memory facility.

1   12.   The system of claim 11, wherein the shared memory interface system
2 on each local node comprises a local shared memory virtual adapter and a global
3 shared memory virtual adapter;
4   the local shared memory virtual adapters being operable to capture locally
5 addressed packets from the local communications protocol stacks and to route the
6 captured packets for physical transport over the shared memory facility; and
1   the global shared memory virtual adapters being operable to capture globally
2 addressed packets from the local communications protocol stacks and to route the
3 captured packets for physical transport over the shared memory facility.

1   13.   The system of claim 12, wherein the local shared memory virtual
2 adapters appear to the local communications protocol stacks as device drivers for
3 physical network adapters connected to the local shared memory network, and the
4 global shared memory virtual adapters appear to the local communications protocol
5 stacks as device drivers for physical network adapters connected to the global shared
6 memory network.

1   14.   The system of claim 11, wherein the local shared memory network and
2   the global shared memory network provided by the shared memory interface system
3   are each characterized by a respective configurable maximum transfer unit (MTU).

1   15.   A method of providing network infrastructure services, comprising
2   interconnecting through a shared memory facility a plurality of network devices each
3   configured to perform a dedicated network infrastructure function.

1   16.   The method of claim 15, wherein the dedicated network infrastructure
2   function is selected from the group consisting of: a network security function, a
3   quality of service function, and a network management function.

1   17.   The method of claim 16, wherein the dedicated network infrastructure
2   function is selected from the group consisting of: a proxy function, a load balancing
3   function, a memory caching function, an encryption function, a compression
4   function, a re-routing function, an application level network management function,
5   and an active network management function.

1   18.   The method of claim 15, further comprising dynamically configuring
2   the dedicated network infrastructure function performed by a network device.

1   19.   The method of claim 18, further comprising selecting the dedicated
2   network infrastructure function performed by a network device based upon a
3   network management policy.

1   20.   The method of claim 15, further comprising providing a local shared
2   memory network between the network devices, and a global shared memory
3   network between the network devices and one or more remote nodes by capturing
4   packets from local communications protocol stacks of the network devices and
5   routing the captured packets over the shared memory facility.

1   21.   A computer program residing on a computer-readable medium and
2   comprising computer-readable instructions for causing a computer system to

3   interconnect through a shared memory facility a plurality of network devices each

4   configured to perform a dedicated network infrastructure function.